

Justicia sangilensis, a New Species of Acanthaceae from Guatemala

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Collections from two localities in the Cerro San Gil in the Caribbean lowlands of Izabal, Guatemala, are described as a new species, *Justicia sangilensis*. It is distinctive among North American and Central American *Justicia* by the combination of its arboreal habit, flowers subtended by four large and reddish bracteoles, and large cream-yellow corollas. Infrageneric affinities of the new species are discussed, and illustrations of it are provided.

Se describe *Justicia sangilensis* como especie nueva conocido de dos localidades del Cerro San Gil en selvas muy húmedas de las tierras bajas del Caribe de Izabal, Guatemala. Es distintiva entre *Justicia* norteamericano y centroamericano por la combinación de su hábito arbóreo, flores subtendidas por cuatro bracteolas grandes y rojizos, y corollas crema-amarillas y grandes. Se discuten las afinidades infragenéricas de la nueva especie, y se proporcionan las ilustraciones de ella.

Justicia L. is the largest genus of Acanthaceae with more than 700 species worldwide. Thirty-seven species of *Justicia* are currently recognized as native to Guatemala and six of these are endemic there. Three of the endemic species (*J. gibsoniae* S.S.R. Bennet & S. Chandra, *J. neomonotana* S.S.R. Bennet & S. Chandra, and *J. silvicola* D.N. Gibson) are known only from Cerro San Gil in the Montañas del Mico, which is located in the Caribbean lowlands of the department of Izabal. Recent field activities on Cerro San Gil have resulted in collections of another highly distinctive species of *Justicia*, which we describe below.

Justicia sangilensis T.F. Daniel & M. Véliz, sp. nov.

Figure 1.

TYPE.— GUATEMALA. **Izabal:** Reserva Ecológico de Cerro San Gil, between Río Dulce and Puerto Barrios, 15°39'17.9"N, 88°49'16.7"W, 875 m., lower montane rain forest, 24 January 2009, T. Daniel, M. Véliz, A. Maza, & E. Tzul 11,249 (holotype: BIGU!; isotypes: BR! CAS! F! K! MO! US!).

Arbor usque ad 8 m alta. Folia petiolata, laminac ellipticae vel obovato-ellipticae vel obovatae, 87–260 mm longae, 25–76 mm latae, 3–3.8-plo longiores quam latiores. Inflorescentiae c foliorum distalium axillis orta, cymulae 1–3, cymularum bracteolis quatuor, rubris vel ex rubro viridibus, ovatis vel ovato-lanceolatis, 15–24 mm longis, 3.3–9 mm latis. Calyx 5-lobus, 11–16 mm longus, lobis homomorphis, linearibus vel lanceolato-linearibus, 1.5–2.1 mm latis. Corolla cremeo-

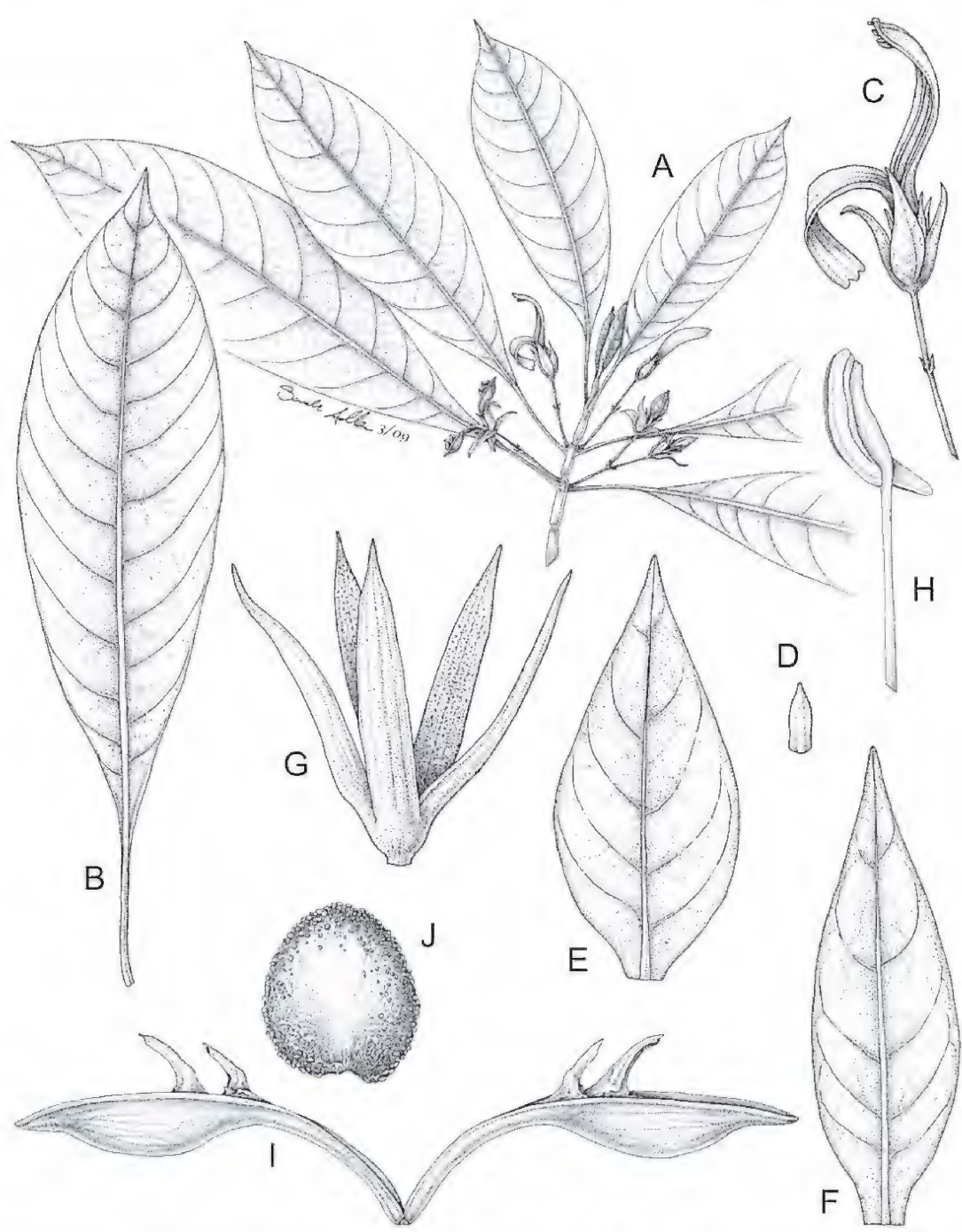


FIGURE 1. *Justicia sangilensis* (Daniel et al. 11249). A. Habit, $\times 0.38$. B. Leaf, $\times 0.4$. C. Cyme with one cymule, $\times 0.86$. D. Bracteole between peduncle of cyme and peduncle of cymule, $\times 3.8$. E. Proximal cymule bracteole, $\times 4$. F. Distal cymule bracteole, $\times 4$. G. Calyx, $\times 3.5$. H. Distal portion of stamen with anther, $\times 5$. I. Capsule (dehiscence), $\times 2.4$. J. Seed, $\times 4.5$. Drawn by Sarah Adler.

lutea, 35–44.5 mm longa, extus glabra. Stamina 25–40 mm longa, thecis 4.1–5.5 mm longis. Pollen granae 2-aperturatae. Capsula 24–28 mm longa, glabra. Semina tuberculata.

Tree to 8 m tall and 10 cm dbh. Young stems subquadrate, glabrous. Leaves (turning dark to black on drying) petiolate, petioles to 70 mm long, blades elliptic to obovate-elliptic to obovate, 87–260 mm long, 25–76 mm wide, 3–3.8 times longer than wide, abruptly acuminate at apex, attenuate at base, adaxial surface glabrous, abaxial surface glabrous, margin entire. Inflorescence of cymes of 1–3 cymules borne in axils of distal leaves, cymes pedunculate (peduncles 9–16 mm long, glabrous), alternate or opposite at nodes, 1 per axil. Bracteoles at apex of peduncles of cymes (i.e., subtending peduncles of cymules) $\pm$ linear to subulate, 1.3–5 mm long, 0.4–0.7 mm wide, abaxial surface glabrous. Cymules pedunculate, (peduncles 13–20 mm long, glabrous), 1 (–2 or more)-flowered, secondary flowers (if present) borne in secondary cymules on secondary peduncles to 17 mm long, flowers subsessile (i.e., borne on pedicels to 1 mm long), subtended by an involucre of 4 conspicuous cymule bracteoles, these inserted one pair slightly distal to the other, entirely red or greenish with reddish tinge and red veins distally, ovate to ovate-lanceolate, 15–24 mm long, 3.3–9 mm wide, distal pair longer than proximal pair, abaxial surface glabrous. Calyx 5-lobed, 11–16 mm long, lobes linear to lance-linear, 10–14 mm long, 1.5–2.1 mm wide, widest at or near base, lobes equal in size, abaxially glabrous. Corolla cream-yellow, externally glabrous, 35–44.5 mm long, tube $\pm$ cylindric, 6.5–15 mm long, 3–4 mm in diameter near midpoint, upper lip internally rugulate, erect and curved forward apically, 22–37 mm long, minutely emarginate to 2-lobed at apex, lobes 0.2–1 mm long, lower lip decurved, 25–36 mm long, 3-lobed, lobes 1–2.5 mm long (sometimes with one lobe divided nearly to the base of the lip and up to 23 mm long), 1–2.5 (–2.8) mm wide. Stamens inserted near apex of corolla tube, exserted from tube but not extended beyond upper lip, 25–40 mm long, filaments glabrous, thecae cream to greenish, 4.1–5.5 mm long, subequal in size, parallel, subequally inserted, dorsally glabrous, lacking basal appendages or each with an inconspicuous basal appendage 0.1–0.2 mm long; pollen 2-aperturate, apertures flanked on each side by 1 row of insulae and also by peninsulae (a few of which sometimes develop into discrete insulae). Style exserted from corolla tube, sometimes extending slightly beyond upper lip, 35–39 mm long, glabrous, stigma 0.2 mm long, unequally 2-lobed. Capsule 24–28 mm long, glabrous, stipe 11–14 mm long, head 13–14 mm long. Seeds 4 (or fewer by abortion), sublenticular, broadly ovate to subcircular, 5.5–6.5 mm long, 4.5–5.8 mm wide, surfaces and margin covered with low rounded or crateriform (to subconic) tubercles.

PHENOLOGY.— Flowering: October, January; fruiting: October, January.

DISTRIBUTION AND HABITAT.— Endemic to Cerro San Gil near the Caribbean coast of northeastern Guatemala; plants occur in lower montane rain forest (bosque muy humedo) at elevations near 875 m.

PARATYPES.— GUATEMALA. **Izabal:** Cerro San Gil, 15°39'51.8"N, 88°41'40.9"W, 28-X-2002, Herbario USCG-CDC 2989 (BIGU, USCG); Cerro San Gil, 15°39'17.9"N, 88°49'16.7"W, M. Véliz *et al.* 20648 (BIGU), 20649 (BIGU), 20650 (BIGU).

Infrageneric affinities of *Justicia sangilensis* remain unknown. It does not conform to any of the infrageneric taxa recognized by Graham (1988). Pollen of the species (Fig. 3) resembles that found in many sections of the genus. The species is unique among Mexican and northern Central American species by its arboreal habit (Fig. 2A). The reddish floral involucre (Fig. 2B) formed by the four cymule bracteoles superficially resembles the fused floral bracts that form an involucre around flowers of *J. borrae* (Hemsl.) T.F. Daniel (see Daniel 1995a, 1995b). However, the unfused floral bracteoles in *J. sangilensis* are likely more akin to the pairs of cymule bracteoles in *Dicliptera* and some *Justicia* (e.g., *Justicia pedicellata* D.N. Gibson from Guatemala and *Justicia*



FIGURE 2. Photographs of habit and inflorescences (with flower and fruit) of *Justicia sangilensis* (Daniel et al. 11,249). A. Arboreal habit. B. Inflorescence with paired (reddish) bracteoles subtending flower (right) and inflorescence with fruit (left).

cymulifera T.F. Daniel from Mexico; cf. Daniel 2007). Vegetative portions of the plant tend to blacken on drying. Indeed, even fresh young leaf segments placed in silica gel turned black.

The two known collection sites of *Justicia sangilensis* are about 13.5 km distant — from the western side of the Cerro San Gil (Daniel et al. 11249, Véliz et al. 20648–50) to the eastern side (Herbario USCG-CDC 2989). According to a collector of the latter collection (J. Sánchez, pers. comm. at USCG) this species was seen in only a single locality in dense forest in the region, and the flowers were actively visited by hummingbirds at the time of collection. Likewise, we noted the locally abundant occurrence of this species in a restricted area on the western side of Cerro San Gil. We also observed hummingbirds near the plant, but we did not see them visit the flowers (of which there were very few at the time).

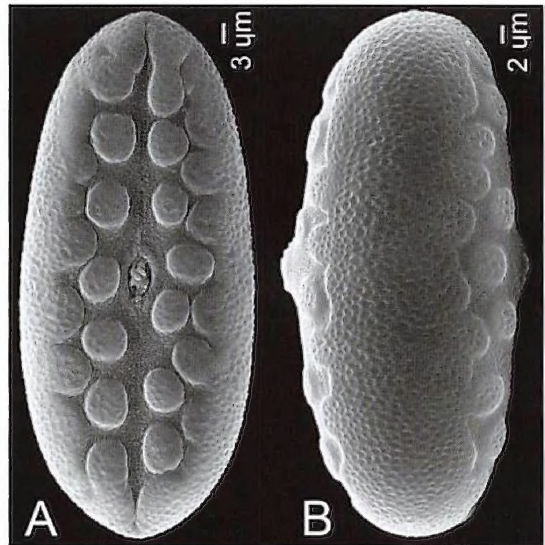


FIGURE 3. Pollen of *Justicia sangilensis* (Daniel et al. 11249). A. Apertural view. B. Interapertural view.

Cerro San Gil rises from near sea level to 1267 m and appears to be a “hotspot” of biological diversity in Guatemala. The lowland to montane rain forests and cloud forest at the summit (the Cerro is included within “bosque muy húmedo tropical” in the Holdridge System of Life Zones; cf. MAGA 2001) support at least four species of *Justicia* endemic to the mountain. Other Acanthaceae there include: *Aphelandra aurantiaca* Lindl., *Justicia fimbriata* (Nees) V.A.W. Graham, *Lepidagathis alopecuroidea* (Vahl) R. Br. ex Griseb., *Odontonema albiflorum* Leonard, *O. hondurensis* (Lindau) D.N. Gibson, *O. tubaeforme* (Bertol.) Kuntze, *Poikilacanthus macranthus* Lindau, *Razisea spicata* Oerst., and *Ruellia pygmaea* Donn. Sm. *Razisea spicata* is known from Guatemala only by a collection from the uppermost ridges and summit of Cerro San Gil, where the species attains the northernmost extent of its distribution. Additional Acanthaceae occurring at the base of the Cerro San Gil around the Bahía de Santo Tomás include *Justicia bartlettii* (Leonard) D.N. Gibson, *J. viridescens* (Leonard) T.F. Daniel (endemic), and *Schaueria parviflora* (Leonard) T.F. Daniel. A protected reserve encompasses portions of the Cerro San Gil.

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